Message

From: Reddy - CDPHE, Patrick [patrick.reddy@state.co.us]
Sent: 3/17/2014 4:53:31 PM
To: Brad Pierce - NOAA Federal [brad.pierce@noaa.gov]
CC: Briggs, Kevin [Kevin.Briggs@state.co.us]; Tonnesen, Gail [Tonnesen.Gail@epa.gov]; Payton, Richard [Payton.Richard@epa.gov]; Scott Landes - CDPHE [scott.landes@state.co.us]; emmett.malone@state.co.us; Chuck.Machovec@state.co.us; Pierce', 'GORDON [Gordon.Pierce@state.co.us]; Andrew Langford-NOAA Federal [andrew.o.langford@noaa.gov]; gregory.harshfield@state.co.us
Subject: Re: Possible stratospheric intrusion March 17 and 18 next week
Attachments: March 17 2014 12Z NAM12 600mb IPV and RH 500mb heights 3 18 6Z.png; March 17 2014 12Z NAM12 IPV xsect NW CO to Front range 3 18 3Z.png; March 17 2014 12Z NAM12 IPV xsect NW CO to SW CO 3 18 6Z.png

Hi all,

I have attached 3 plots from this morning's 12Z run of the NAM12 forecast model. One plot is 500 mb heights, 600 mb RH (grey) and 600 mb IPV above 1.5 PVUs (rainbow) at 6Z on the 18th (11 PM MST) showing the fold descending in parts of the Front Range and southwest Colorado. Another is the IPV cross section for the same time for the entire western border of Colorado, showing the fold descending to between the 3 and 4 km level in southwest Colorado. The third plot shows a similar cross section for 3Z (8 PM MST) this evening for a line from northwest Colorado to just east of the Denver area. This plot shows a filament of the fold lowering to between 3 and 4 kilometers over the Front Range. A look at a cross section of potential temperatures for this evening suggests that "normal" mixing will not bring the filament to the surface. This is probably why the 600 mb RH is not particularly low. The potential temperature cross section, however, does suggest that there will be a significant mountain wave in the lee of the Divide tonight (the effects of these are not always well represented in the models). These tend to drag the filaments to the surface over and near the foothills of the Front Range.

Given this outlook, I would not be surprised to see one-hour ozone values in the 70 to 80 ppb range for a few hours in the higher foothills locations overnight and perhaps at Fort Collins West, South Bolder Creek, Rocky Flats, NREL, and the Air Force Academy. There is likely less potential for mountain waves to bring the fold in southwest Colorado to any existing surface sites in our state.

Regards,

On Mon, Mar 17, 2014 at 9:10 AM, Brad Pierce - NOAA Federal <brad.pierce@noaa.gov> wrote:

> Pat,
>
> I've attached the IDEA-I trajectory forecast from CrIS descending orbit measurements on 03/16 which show moderately high (>88ppbv) ozone descending over the 4-corners and SSW by this evening. I've also included the RAQMS O3/CO forecast which shows how this ozone is influenced by trans-pacific pollution transport. Not any significant signatures at the surface, but RAQMS is currently underestimating surface ozone in rural areas of the inter-mountain west.
>
> Gail, I can summarize this event and the beta release of the IDEA-I trajectory forecast at the SI working group meeting if you would like.
>
> Brad
>
> On Fri, Mar 14, 2014 at 11:28 AM, Reddy - CDPHE, Patrick <patrick.reddy@state.co.us> wrote:
>
> > Greetings,

It looks like there might be an intrusion event from northern Nevada through northern Utah into southern Colorado on Monday March 17 through the morning of March 18. This might be a good event to look at with the new IDEA tool.

Pat

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Patrick J. Reddy

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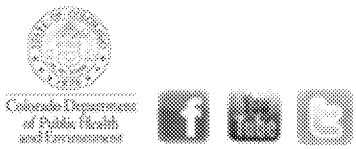

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R. Bradley Pierce

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